

## Appendix E: Portfolio-Level Questions to Subject Matter Experts

Dear Subject Matter Experts,

Thank you for your help so far in conducting lead and secondary reviews. All have been received.

Now that each of you has become familiar with significant segments DOE's SOFC portfolio, we'd like to ask a few follow up questions from the portfolio perspective. The questions fall into two general categories: technological achievements and technical goals.

Regarding technological achievements for the projects for which you were a lead reviewer, and keeping in mind that some of the projects you reviewed had limited and/or missing documentation, can you provide an example or examples of significant technical achievements or lessons learned in each of the following areas?

- Control of heat flow management
- Control of gas flow management
- Cost of materials
- Availability of special items
- Balance of Plant
- Load following, fuel cell kinetics, and connections to the grid

Relative to technical goals, DOE has targeted the following metrics for SOFCs in the future. Based on the projects for which you were a lead reviewer, from an overall program perspective, please comment on 1) whether these targets are reasonable and achievable; and 2) whether you foresee any specific technical hurdles that would preclude achievement of these goals.

- Efficiency = 60% without carbon capture and sequestration
- Lifetime = 40,000 hours
- Degradation < 0.2% per 1,000 hours
- Cost < \$225 / kW for a stack
- Cost < \$900 / kW for a system

Finally, we welcome any and all comments and professional opinions that you have about the progress achieved by the SOFC program and also the challenges it faces relative to the program mission statement.

### **Mission Statement**

Enabling the efficient generation of low-cost electricity via second-generation natural gas-fueled SOFC distributed generation (DG) systems and modular, coal-fueled systems; and, transformational coal or natural gas-fueled utility-scale systems with carbon capture and sequestration.

Given the deadlines associated with this program review, we're asking for your feedback on these follow up questions by Wednesday, February 6.

As always, please feel free to reach out if we can assist you in any way.